Description and Instructions for Repair
for the Automatic BIMBO Music Box

The electronic section with the resonant board is mounted inside an attractive wooden cabinet and firmly joined to a glass case which contains music-playing figurines.

After connecting the box to a ~~220~~ 110 volt AC lightning system, the instrument will be ready for operation after a two minutes warming-up period. On the front panel underneath the glass showwindow is a coin slot. After inserting the appropriate coin, the BIMBO Box plays a piece of music, having a duration of approximately one minute. At the same time the figurines seen inside the glass case begin to play upon their instruments.

The BIMBO Box offers a selection of about 150 pieces of music; the program is changeable.

The music is recorded on a magnetic tape, the speed of which is 19 cm/sec., whereby a high-fidelity reproduction is obtained.

In order to be able to increase the total playing time the BIMBO Box is fitted with a tape recorder which can be set to a speed of 9.5 cm/sec.

Description of the ELTA 06 Tape Recorder:

The tape recorder rests upon a sturdy, galvanized frame. Four rubber-bonded metal supports secure the recorder inside the BIMBO Box. For the sake of operational security and a maintenance-free operation, the drive is by means of three PAPST system motors with external rotor. Two of these motors carry the tape reels and operate as winders, the third is the sound monitor. Two separate sound heads scan respectively the upper and the lower sound tracks of the tape. An ebonite pressure roller presses the tape against the shaft end of the monitor. Pressure, respectively lifting, is effected by means of a solenoid. The original recording tapes used in the BIMBO Box are provided at the ends with a silver guide strip. These strips, at the end of a sound track, pass reversing pins arranged between the winding motor and the appropriate sound head, whereby the ELTA 06 tape recorder automatically switches on to the next sound track.

Description of the Reproduction Amplifier:

The reproduction amplifier is fitted with 5 tubes. The input tube is a EF 86 of pentode type. The sound-heads for track 1 or track 2 are attached to their grid by means of a change-over switch. The sound-head voltage, amplified in this tube, is led over a potentiometer to the next tube, the EF 40. The potentiometer serves for the volume control. The EF 40 has triode switching. The third tube is a double-triode ECC 83, which effects the phase reversal working in the balanced operating end tubes 2 times EL 84. A resistance of 1 KOhm each is arranged on the grids of the end tubes EL 84 to prevent self-excitation in the ultra short-wave range. The end-tubes operate on a 10 Watt push-pull output transmitter, which serves to feed the three loudspeakers mounted on a sounding board.

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Description of the Electronic Control and the Relay Plate:

The sound-head voltage led to the reproduction amplifier, is subsequently led to the electronic control following its amplification in the first tube step EF 86. The electronic control amplifier consists of four tube steps, fitted with the three tubes EC 92, ECC 83, and EL 95.

A regulator fitted in front of the grids of tube EC 92 serves to control the switching time of the switch amplifier. The regulator can be adjusted by means of a screwdriver. A right-hand turn of the regulator results in a retardation, while a left-hand turn results in a reduction in switching time.

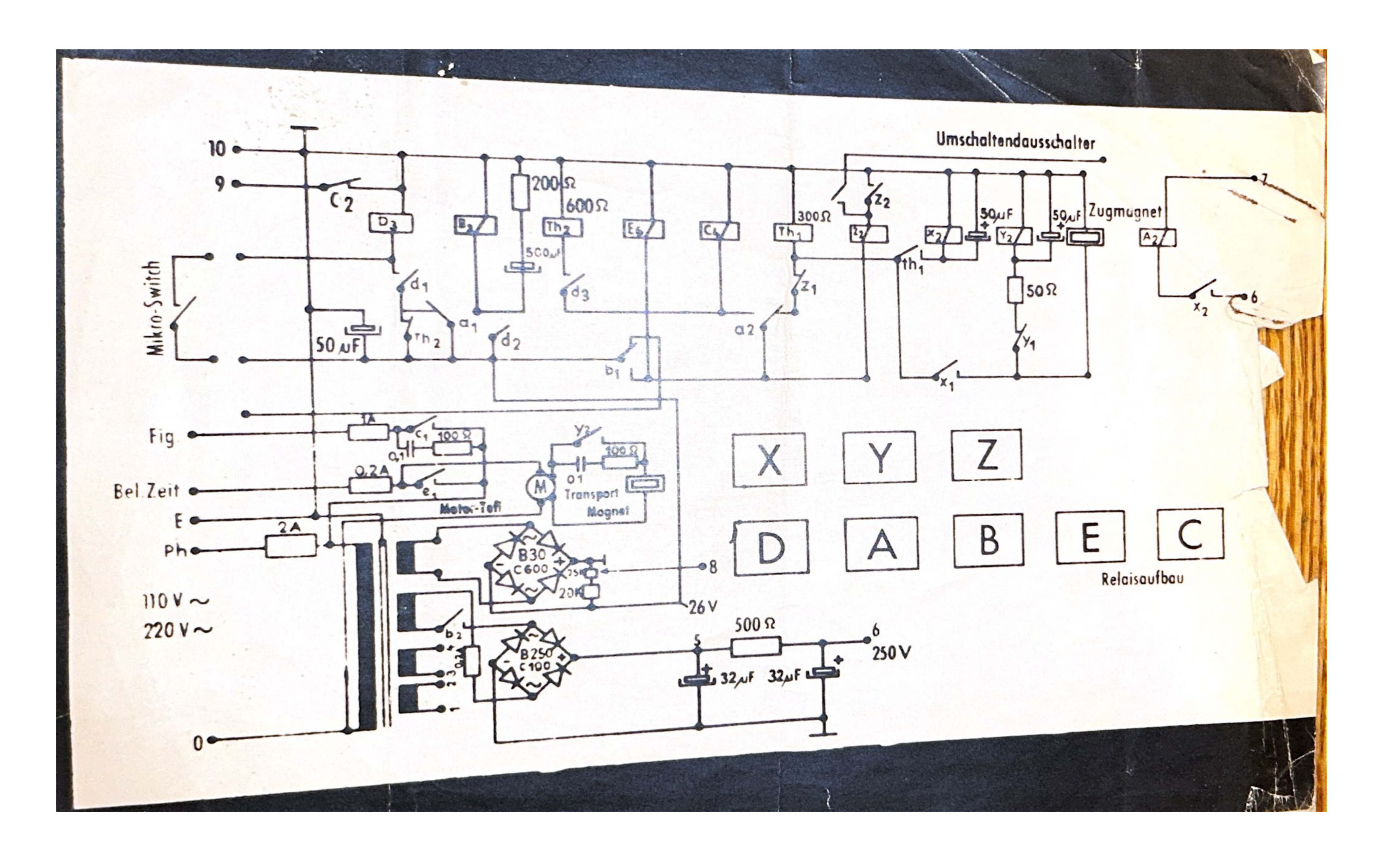
The power tube EL 95 works on a flat rectifier in the GRAETZ switching principle. In this the amplified sound frequency is rectified and connected to the relay plate. The relay plate is fitted with 11 dust-tight enclosed relays.

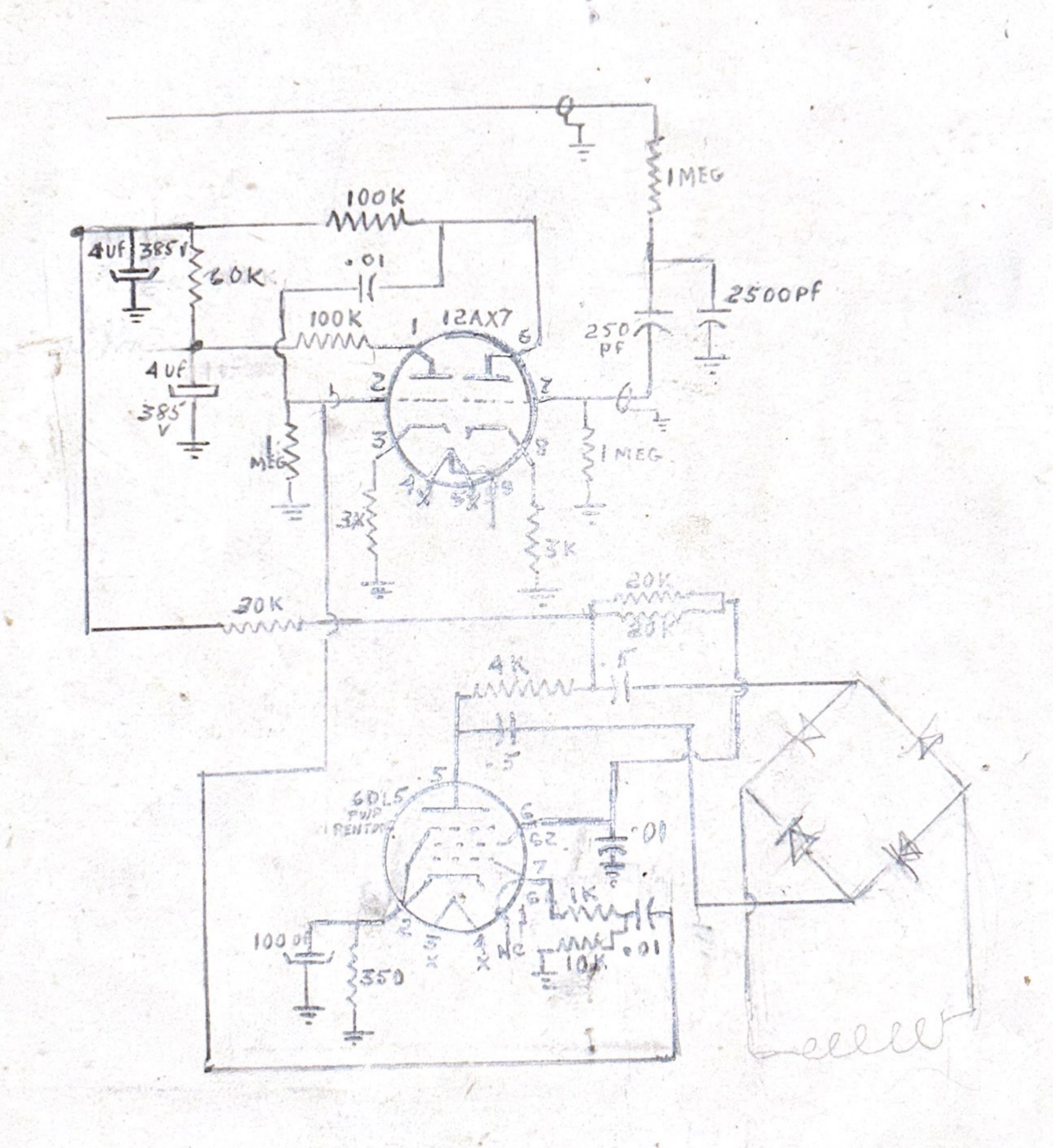
After insertion of a coin in the music box the relays are energized for operational voltage by means of a coin contact. This causes an anode voltage to flow through the pre-heated reproduction amplifier which is then immediately ready to play.

Additional relay contacts engage the winding motors according to the track position and also the monitor as well as the pressure solenoid. After each piece of music a stop signal is impressed on the tape, which, after amplification in the first tube step EF 86 of the reproduction amplifier is further amplified in the switch amplifier and then led to the switching-off relay. This thereby interrupts all relays engaged by coin insertion and the BIMBO Music Box is ready to play the next piece of music.

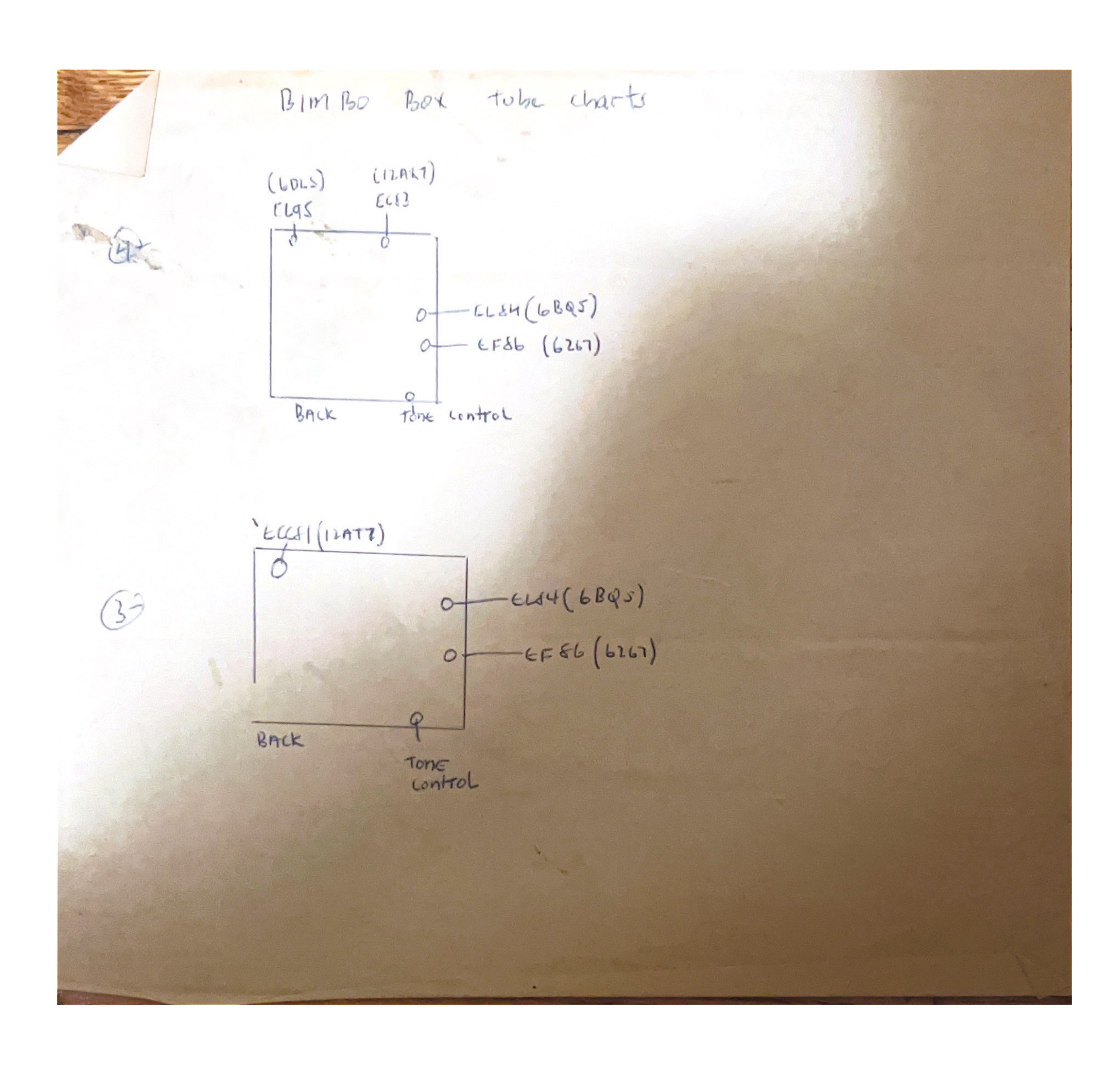
N O V A

Apparate-Gesellschaft m.b.H.


Umschaltendausschalter
Zugmagnet
Mikro-Switch
Fig
Bel. Zeit
E
Ph
110 V ~
220 V ~
Motor-Tefi
Transport
Magnet
26 V
250 V
500 Ω
32 µF
50 µF
200 Ω
600 Ω
300 Ω
50 Ω
100 Ω
500 µF
B30
C600
B250
C100
2A
1A
0,2A
X
Y
Z
D
A
B
E
C
Relaisaufbau



100K
4UF
385V
60K
.01
100K
12AX7
1MEG
2500PF
250 PF
4UF
385V
MEG
1MEG
3K
3K
20K
20K
20K
4K
6DL5
.5
.01
1K
10K
.01
100
350
NC


BIMBO Box tube charts
4
(6DL5)
EL95
(12AT7)
ECC83
EL84 (6BQ5)
EF86 (6267)
BACK
Tone control
3
ECC81 (12AT7)
EL84 (6BQ5)
EF86 (6267)
BACK
TONE
control